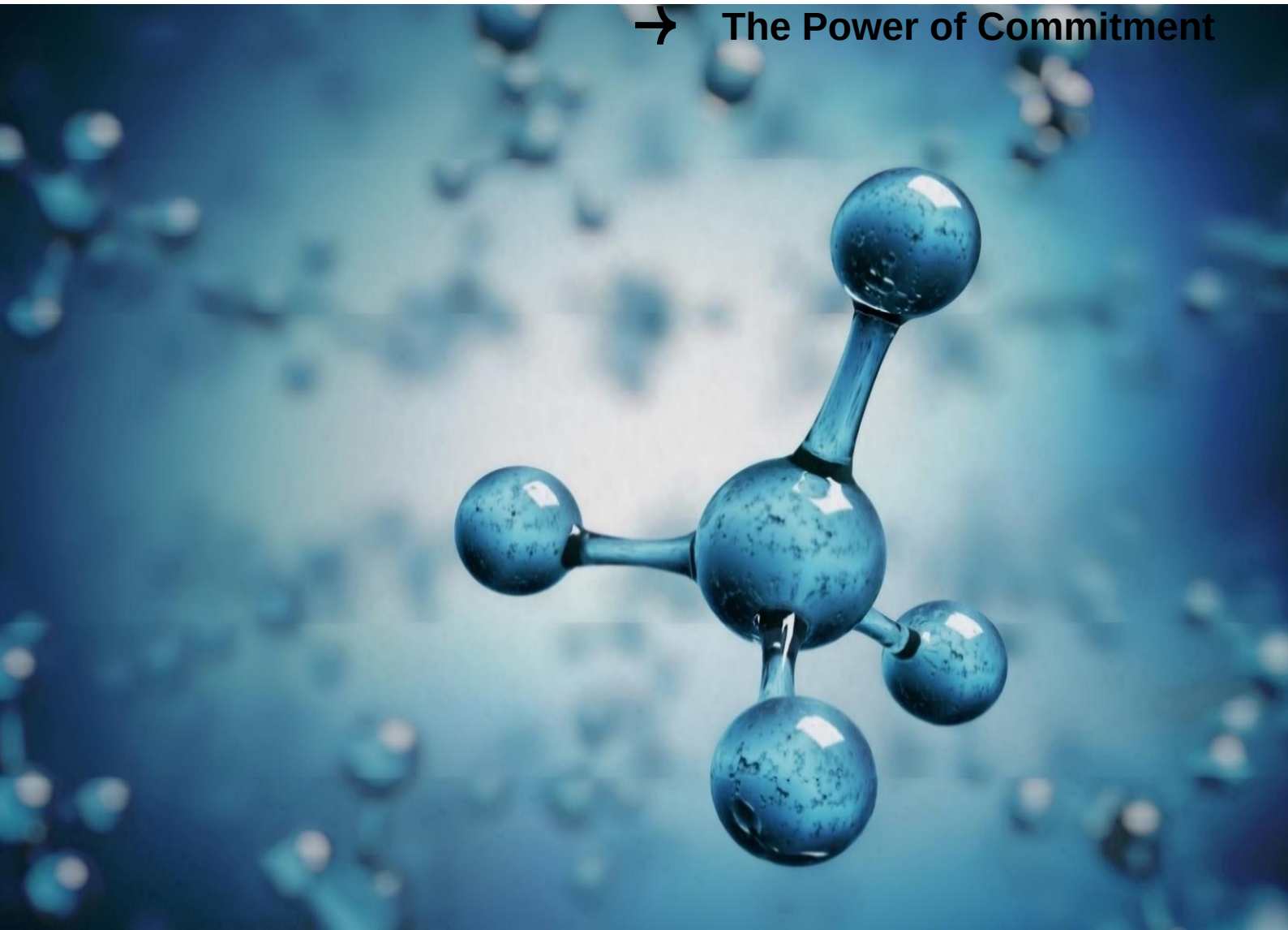
Lucas Heights Bioenergy Facility

SSD Scoping Report

LMS Energy Pty Ltd

24 January 2025



Project name		Project Bright - Consultancy services					
Document title		Lucas Heights Bioenergy Facility | SSD Scoping Report					
Project number		12649882					
File name		12649882-REP-A_ Bioenergy facility -Scoping Report					
Status Code	**Revision**	**Author**	**Reviewer**		**Approved for issue**		
			Name	**Signature**	**Name**	**Signature**	**Date**
S3	A	T Holmes	K Rosen D Gamble	On file	D Gamble	On file	14/01/25
S3	B	T Holmes	D Gamble	On file	D Gamble	On file	23/01/25
S3	0	T Holmes	D Gamble		D Gambel	On file	23/01/25

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Key terms, acronyms and abbreviations

Term	Definition
AS	Australian Standard
CEMP	Construction environmental management plan
CRG	Community Reference Group
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979 (*NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPL	Environment Protection Licence
FTE	Full time equivalent
km	Kilometres
KL	Kilolitre
kV	Kilovolts
LGA	Local government area
NPI	National Pollutant Inventory
NSW	New South Wales
MW	Megawatt
M	Metres
PLC	Programmable Logic Controller
$PM_{2.5}$	Particulate matter 2.5 micrometres or less in diameter
PM_{10}	Particulate matter 10 micrometres or less in diameter
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
POEO Clean Air Regulation	NSW Protection of the Environment Operations (Clean Air) Regulation 2022

Executive summary

The project

LMS Energy Pty Ltd ("LMS") proposes to provide an upgrade to the landfill gas management infrastructure at the Lucas Heights Resource Recovery Park (LHRRP) through the installation of a replacement bioenergy facility for the production of renewable energy from landfill gas (the project).

The new bioenergy facility would be a like for like replacement of the existing power station with improvements that comply with modern standards and regulations and forecast biogas generation capacity requirements. The project ensures renewable energy generation would effectively continue through the remaining landfilling and post closure periods for the landfill.

The landfill gas management system is required to operate for the life of the landfill including the post closure landfill gas generating period, which is expected to span several decades. Recoverable landfill gas generation is predicted to peak at between 12,000 m^3/hour and 13,000 m^3/hour over the next five years.

The development has an estimated cost greater than $30 million and is declared State Significant Development (SSD) in accordance with clause 20 of Schedule 1 of State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP).

Purpose of this report

This report has been prepared to support an application to the NSW Department of Planning, Housing and Infrastructure (DPHI) to request SEARs and has been prepared in accordance with the State significant development guidelines – preparing a scoping report (DPHI, 2022).

It includes an outline of the strategic context, description of the project, the statutory context, stakeholder engagement completed to date, proposed ongoing engagement, preliminary identification of relevant environmental matters, potential impacts and the proposed scope of the assessment to be undertaken in an Environmental Impact Statement (EIS).

Assessment findings

The preliminary environmental assessment undertaken as part of the preparation of this EIS Scoping Report identified that the following environmental issues require detailed assessment in the EIS:

– Air quality
– Hazards
– Noise and vibration
– Social impact.

Next steps

Following receipt of the SEARs, the EIS for the project would be prepared in accordance with the SEARs and technical guidelines and publicly exhibited. The EIS would include:

– A description of the project including its components and construction activities.
– Identification and consideration of issues raised by stakeholders and the community.
– A description of the existing environment.
– An environmental assessment of potential direct and indirect impacts on environmental and social issues during construction and operation of the project.
– Identification of measures to be implemented to avoid, minimise, manage, offset and/or monitor the potential impacts of the project.

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1. Introduction

1.1 Project overview

LMS proposes to provide replacement landfill gas management infrastructure in support of the Lucas Heights Resource Recovery Park (LHRRP), through installation of a new, upgraded bioenergy facility to produce renewable energy from landfill gas (the project).

The new bioenergy facility would be a like for like replacement of the existing power station, with improvements that comply with modern standards and regulations and forecast biogas generation capacity requirements. The project ensures renewable energy generation would effectively continue through the remaining landfilling and post closure periods for the landfill.

A regional overview of the project is shown in Figure 1.1.

1.2 Background

The LHRRP is operated by Cleanaway Pty Ltd (Cleanaway) in accordance with State significant development (SSD) consent (No. SSD 6835). SSD 6835 allowed for an increase in landfill capacity, relocation and expansion of the garden organics (GO) facility and construction and operation of a new advanced resource recovery technology (ARRT) facility. The approval also allowed for continued operation and maintenance of the landfill gas infrastructure within the LHRRP boundary including the progressive installation of landfill gas extraction wells and header pipes to transfer landfill gas to a power station and flare. The landfill gas infrastructure is operated by a separate entity to Cleanaway.

Through the production of distributed baseload renewable electricity, the utilisation of landfill gas for energy generation provides numerous environmental and community benefits, carbon abatement and air quality improvement through destruction of methane and other volatile organic compounds. The proposed bioenergy facility will be capable of generating up to 190,000 MWh annually, which is equivalent to powering approximately 30,000 homes in the region, and abating over 1 million tonnes of CO_2 emissions.

The existing power station is located on the adjoining Lot 102 DP 1009354, currently utilising the gas generated from LHRRP and Lucas Heights 2 Landfill, and approved under a 1996 Sutherland Shire Council consent (#970251). Commissioned in 1998, this current facility is near the end of its design life years.

Recoverable landfill gas from LHRRP is predicted to peak at between 12,000 m^3/hour and 13,000 m^3/hour over the next five years and will continue to be generated for decades following LHRRP's closure. This project addresses two critical needs: (a) to upgrade the existing power station to modern standards and (b) to accommodate this future gas volume requirement. This project provides a like for like replacement of the existing power station, with added safety and environmental benefits arising through implementing modern, more efficient, plant and gas and electrical standards.

The project involves the construction and operation of a new bioenergy facility to replace the existing landfill gas infrastructure and meet the forecast gas recovery for the life of the existing approved landfill. A new standalone development application is required to gain consent for the bioenergy facility.

1.3 Site history

The existing landfill operations and infrastructure were established in 1987 and previously approved under a number of consents including Development Application (DA) 11.01.99 for the landfilling operations and a 1996 Sutherland Shire Council consent (#970251) for the power station.

State Significant Development (SSD) application (No. SSD 6835) was approved by the Planning Assessment Commission on 23 January 2017 to replace the DA 11.01.99. SSD 6835 allowed for an increase in landfill capacity, relocation and expansion of the GO facility and construction and operation of a new ARRT facility. A condition of SSD 6835 also required the modification of DA 11.01.99 to remove conditions that relate to the LHRRP, which was subsequently undertaken.

To date, two modifications to SSD 6835 have been submitted and determined. These were for an increase in operating hours (Mod 1) and an expansion of the GO facility to 100,000 tonnes per year (Mod 2).

1.4 Other development related to this project

LMS is concurrently seeking to modify SSD 6835 under section 4.55(1a) of the Environmental Planning and Assessment Act 1979 (EP&A Act) for installation of an enclosed flare system to meet the full gas recovery capacity at the LHRRP.

The proposed flare facility is intended to provide a contingency as required during commissioning, maintenance and shutdown of the proposed bioenergy facility to maintain consistent gas combustion rates to support the operation of the existing landfill. It will also ensure continued landfill gas combustion during the transition from the existing power station to the proposed bioenergy facility.

The operation and management of the existing power station and ancillary equipment is undertaken by a separate organisation in accordance with DA #970251, and decommissioning of this facility is outside the scope of this application.

1.5 The proponent

The proponent for the project is LMS Energy Pty Ltd. Details for are provided in Table 1.1.

Table 1.1 Proponent details

Proponent	
Proponent	LMS Energy Pty Ltd
Project Proponent Address	118 Greenhill Road, Unley SA 5061
Business ABN	39 059 428 474
Contact Name	Jon Varcoe
Phone Number	0458 573 533
Email	jon.varcoe@lms.com.au

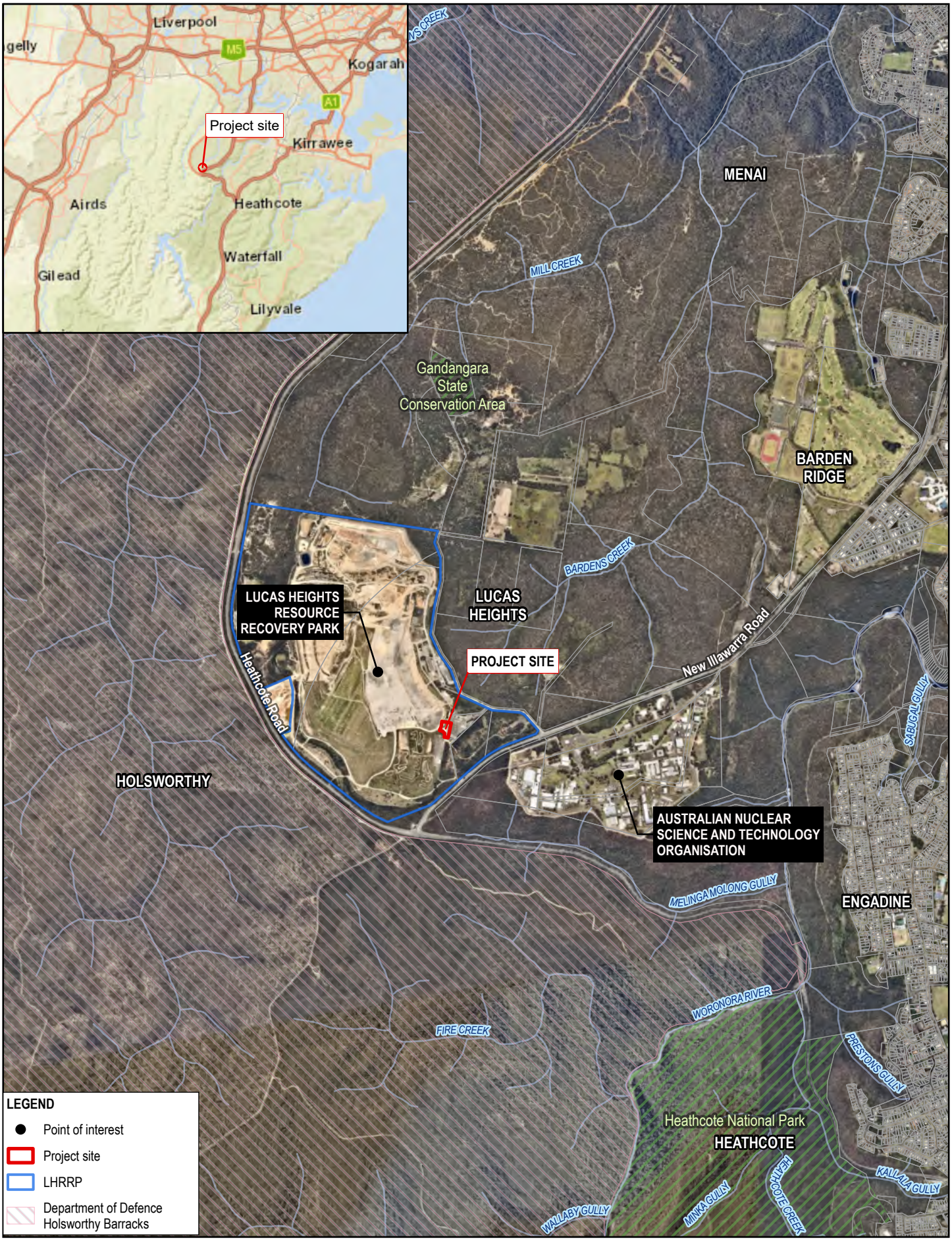
1.6 Purpose of this report

This report has been prepared to support an application to the NSW Department of Planning, Housing and Infrastructure (DPHI) to request SEARs and has been developed in accordance with the *State significant development guidelines – preparing a scoping report* (DPIE, 2022).

It includes an outline of the strategic context, description of the project, the statutory context, stakeholder engagement completed to date, proposed ongoing engagement, preliminary identification of relevant environmental matters, potential impacts and the proposed scope of the assessment to be undertaken in an Environmental Impact Statement (EIS).

This Scoping Report has been prepared to:

– Provide the DPHI with an overview of the project (Section 3)
– Identify relevant key environmental matters that will be further investigated for the EIS that will support the EIS application for the project (Section 6)
– Identify key stakeholders to be consulted during the preparation of the EIS (Section 0)
– Seek DPHI's confirmation of the adequacy of the proposed assessments and its approach.



Paper Size ISO A4

0 250 500 750 1,000

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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LMS Energy
Lucas Heights Bioenergy facility

Regional context

Project No. **12649882**
Revision No. **A**
Date **10/12/2024**

FIGURE 1.1

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Data source: LPMA: DTDB/DCDB, 2019. World Street Map: Esri, HERE, Garmin, NGA, USGS
Nearmap WMS Server:
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2. Strategic context

2.1 National waste policy 2018

The Australian Government released the 'National Waste Policy: Less Waste More Resources' (Commonwealth of Australia, 2018). The National Waste Policy builds on the 2009 policy to provide a framework for businesses, governments, communities and individuals for waste management up to 2030. The policy sets the direction for waste management in Australia, aiming to produce less waste for disposal and manage waste as a resource to deliver economic, environmental and social benefits with a clear shift towards a circular economy.

The policy establishes a comprehensive program for national coordinated action on waste underpinned by five key principles:

1. Avoid waste by prioritising waste avoidance and encouraging efficient use of resources and designing products so waste is minimised
2. Improve resource recovery including the collection systems and processes and improving the quality of recycled material produced
3. Increase the use of recycled material and build demand and markets for recycled products
4. Better management of material flows to benefit human health, the environment and economy
5. Improve information to support innovation, guide investment and enable informed consumer decisions.

The overall objectives of the National Waste Policy are that all wastes, including hazardous wastes, are managed in a way that is consistent with Australia's international obligations, to protect human health and the environment. The policy also seeks to ensure that risks associated with waste are understood and managed to minimise intergenerational legacy issues.

The project would align with the National Waste Policy 2018 by enhancing resource recovery and providing better management to the benefit of human health, the environment and economy. By integrating best practice resource recovery technologies, the facility can improve the recovery of valuable materials, reduce emissions, and support the transition to a circular economy. This approach aligns with the policy's goals of improved resource recovery, efficient resource use, increasing the demand for recycled products, and better management of material flows to benefit human health, the environment and the economy.

2.2 NSW strategic policy framework for waste management

The NSW strategic policy framework for waste management incorporates policy to drive waste reduction and resource recovery. The framework has been strengthened with legislation to streamline development of waste management infrastructure and a strategy to provide for increasing resource recovery and transition to a circular economy. These include the Waste Avoidance and Resource Recovery Act 2001 and associated Strategy 2041 (DPIE) 2021).

2.3 NSW EPA Landfill Guidelines

This project is consistent with EPA guidance (Environmental Guidelines: Solid Waste Landfills, Second edition 2016) which state extracted landfill gas should be used for energy recovery (electricity generation) or should be treated by flaring. Conditions for which the project will be required to comply under EPA regulations include the Protection of the Environment Operations (Clean Air) Regulation 2010.

2.4 Site setting

2.4.1 Location

The project is located within the Sutherland Shire local government area, about 30 kilometres southwest of the Sydney central business district within the suburb of Lucas Heights. Lucas Heights sits between the Royal National Park, Heathcote National Park and the Cubbitch Barta National Estate Area, which is managed by the Department of Defence as a part of the Holsworthy Barracks.

The bioenergy facility is proposed to be located on Lot 101 DP 1009354 and Lot 102 DP 1009354 within the existing LHRRP.

The project site is accessed via Little Forest Road, off New Illawarra Road. An overview of the site context is shown on Figure 2.1.

2.4.2 Land ownership

The LHRRP consists of two land parcels, one owned by Cleanaway and the other owned by the Australian Nuclear Science and Technology Organisation (ANSTO). ANSTO leases its area of the LHRRP to Cleanaway for waste management or other agreed purposes. The bioenergy facility is proposed to be located within the lease area on land owned by ANSTO. Cleanaway would grant LMS a commercial sublease to build and operate the bioenergy facility.

2.4.3 Zoning

The project site is zoned SP1 – Special Activities under the Sutherland Shire Local Environmental Plan 2015 (Sutherland LEP).

The objectives of the SP1 – Special Activities zone are:

– To provide for special land uses that are not provided for in other zones.
– To provide for sites with special natural characteristics that are not provided for in other zones.
– To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land.

Development permitted with consent includes development for the purposes shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose. The Sutherland LEP Land Zoning Map records the project site as ‘waste recycling’.

An amendment to the Sutherland Shire LEP was made in 2016 to permit additional uses on part of the LHRRP site. The amendment inserted Clause 29 in Schedule 1 Additional Permitted Uses of the LEP and includes:

Use of certain land at New Illawarra Road, Lucas Heights

(1) This clause applies to land at New Illawarra Road, Lucas Heights, being Lot 101, DP 1009354, Lot 3, DP 1032102 and Lot 2, DP 605077 (also known as Lucas Heights Resource Recovery Park) and identified as “29” on the Additional Permitted Uses Map.

(2) Development for the purpose of a waste or resource management facility is permitted with development consent if the consent authority is satisfied that the development—

(a) improves the resource recovery capabilities of the land, and

(b) increases the waste disposal capacity of the land to meet the needs of the community, and

(c) ensures landfill is of a type and degree of compaction that is capable of supporting the future use of the land for recreation purposes, and

(d) minimises the environmental impacts of the continued operation of the land on local residents and the environment

Clause 29 applies to land which is identified as “29” on the Sutherland Shire LEP ‘Additional Permitted Uses Map’ which includes the project site. In accordance with the zoning provisions of the Sutherland LEP and the project is

considered ancillary to the LHRRP and will enable improved resource recovery and environmental outcomes at the site. The project is permitted with consent.

2.4.4 Surrounding land use

The immediate surrounding area is undeveloped with the exception of the LHRRP and supports substantial areas of vegetated land as shown on Figure 2.1. There is also minimal heavy industry or commercial development in the area. Special land use activities are key features of the local area which include Defence activities, ANSTO and its associated facilities and the LHRRP. These activities correspond to land zoning of RE1 Public Recreation, SP1 – Research and Technology and SP2 Defence.

2.4.5 Sensitive receivers

The following sensitive receivers are located within the vicinity and surrounding area of the LHRRP and project site:

- ANSTO, about 500 metres to the southeast
- Lucas Heights Motel and Function Centre, about 1.4 kilometres to the east
- Users of the Mill Creek MTB Trails, about 1 kilometre to the north
- The Sydney Clay Target Club, about 1.5 kilometres to the northwest
- Jenko Pony Club and Menai Sand & Soil, about 2.2 kilometres to the northeast
- The Ridge Sporting Complex, athletic track, bike park and golf course, about 2.5 kilometres to the northeast
- Low density residential areas, about 2.3 kilometres to the east.

2.4.6 Topography, hydrology and drainage

The project site is generally flat in nature, with only two metres of variation in topography (GHD, 2024). The existing terrain could have been substantially altered by earthworks associated with past landfilling activities.

The project site lies within the catchment area of Barden's Creek which drains toward New Illawarra Road and Little Forest Road in the southeast. The project site is not located in an area identified as flood prone land by the Sutherland LEP. Flooding is not expected to occur over the project site.

2.4.7 Vegetation

The project site consists of highly disturbed land with little to no vegetation cover. A recent preliminary investigation of the project site was undertaken in August 2024 (GHD 2024) which indicated the presence of:

- An unmaintained garden bed with planted Lomandra spp. with small sections of exotic grassland/weeds
- Remaining vegetated areas consisting of exotic grassland and associated weeds.

Refer to Table 6.1 for images of the project site dated 23 August 2024 and section 6.3 for a detailed analysis of vegetation present within the project site.

The project site is partially located on bushfire prone land (Vegetation Buffer) on the northern portion of the project site (NSW RFS 2015).

2.4.8 Access

The project site would be accessed via Little Forest Road and New Illawarra Road. Little Forest Road traverses land that is also subject to a lease agreement (GHD, 2015). Little Forest Road is a two-way sealed road which also provides access to the LHRRP. New Illawarra Road is a two-lane carriageway and gazetted State road managed by Transport for NSW (TfNSW).

Paper Size ISO A4

0 100 200 300 400

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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Lucas Heights Bioenergy facility

Project site and surrounding land use

Project No. **12649882**
Revision No. **A**
Date **10/12/2024**

FIGURE 2.1

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Data source: LPMA: DTDB/DCDB, 2019. Nearmap WMS Server: .
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3. Project description

3.1 Overview

The bioenergy facility would comprise 20 x 1.1 megawatt (MW) clean burn generators, capable of generating up to 192,000 megawatt hours ('MWh') per year of renewable electricity created from landfill biogas extracted from the existing network of gas extraction pipes installed within the landfill.

Landfill gas is currently transferred to the existing power station located at the south eastern portion of the LHRRP and transformed into energy for power generation or is flared to the atmosphere. Gas supplied to the existing power station would be redirected to the new bioenergy facility, making the existing facility redundant.

The proposed layout of the new bioenergy facility is shown in Figure 3.1 and Figure 3.2.

3.2 Key features

The key project characteristics are summarised in Table 3.1.

Table 3.1 Key project features

Project element	Description
Operation	
Bioenergy facility components and capacity	20 x 1.1 MW modular lean burn generator sets to provide a total output of approximately 22 MW.
Project footprint	The bioenergy facility footprint would be approximately 0.5 ha, located to the west of the existing power station within the LHRRP site boundary. A power line (underground and above ground) within an associated electricity easement of approximately 120 m would be required to form the connection to electrical distribution infrastructure located within Lot 102 DP1009354 (refer to Figure 3.1)
Ancillary infrastructure	– Filtration and compression system to remove moisture and particulate matter from the biogas – Transformers to step up the electrical output voltage from LV to HV to match the local grid voltage – Lightning poles – Ring main unit – Electricity and gas metering, protection and communication equipment – Covered bunded bulk oil and coolant storage – HV Switchroom / Control room – Lunchroom / Toilet – Workshop – Rainwater tank(s) – Safety shower(s) – Car parking for on site operators.
Utilities connections	– New electricity connection to the Ausgrid electricity distribution network as an extension of the connection from the existing electrical infrastructure to the Lucas Heights Zone Substation – New fibre connection to the Ausgrid Lucas Heights Zone Substation
Hours of operation and staffing	– The bioenergy facility would be in operation 24/7 with remote operation outside of working hours 7am to 4pm. – A staffing requirement of 6 full time equivalent (FTE) employees would be required.
Access	The bioenergy facility would be accessed through the main LHRRP entrance off Little Forest Road via internal access roads.

Construction	
Construction hours	7am – 5pm (Weekdays), 8am – 5pm (Saturday - Sunday)
Construction timing	Approximately 6-8 months
Workforce	15

3.2.1 Facility design

The generator sets would comprise a reciprocating lean burn gas engine purpose built for landfill gas combustion.

Installation of the generators would comprise a modernised, fully fenced secure area that includes separate self-contained modules and associated ancillary equipment including high voltage switchgear for the export of the electricity generated to the local Ausgrid distribution network.

The custom designed generator enclosures are fully insulated to attenuate noise, with engine exhaust emitted through stainless steel stacks located on top of the modules, approximately 10.2 metres from ground level. Each generator module would house all the components required to operate as a stand-alone unit and are specially designed as fully enclosed bunded systems.

The modularised generator equipment is scalable both from a development perspective, and operationally, allowing flexibility to operate mixed modes (i.e. combination of either flaring and / or generation) as required. This ensures the ability to combust the maximum available gas, 24 hours per day is seamless with Programmable Logic Controller (PLC) controls and remote monitoring ensuring round the clock tracking.

3.2.2 Ancillary infrastructure

Ancillary infrastructure for the bioenergy facility would include the following:

– gas delivery and drying
– gas quality monitoring
– electricity transformers
– site office/lunchroom and amenities, maintenance workshop/dry storage shed
– high voltage switch room/ control room
– self-bunded bulk oil storage
– bunded chemical store
– internal sealed roads
– lightening protection and earth grid
– chain link security fence on boundary.

Electricity infrastructure

Existing electrical distribution infrastructure located within Lot 102 DP1009354 and Little Forest Road would be extended through Lot 101 DP1009354 to the bioenergy facility, providing a dedicated connection point for the new generators to the AusGrid services located underground and adjacent the existing power station. The existing electrical infrastructure provides a connection through to the Lucas Heights Zone Substation, located approximately 200 metres southeast, via a 33kV feeder.

As part of engagement with AusGrid, works to connect the facility would include installation of communications fibre using existing conduit routes to the Lucas Heights Zone Substation (refer to Figure 3.1).

3.2.3 Estimated development cost

The project would have an estimated development cost of $43 million.

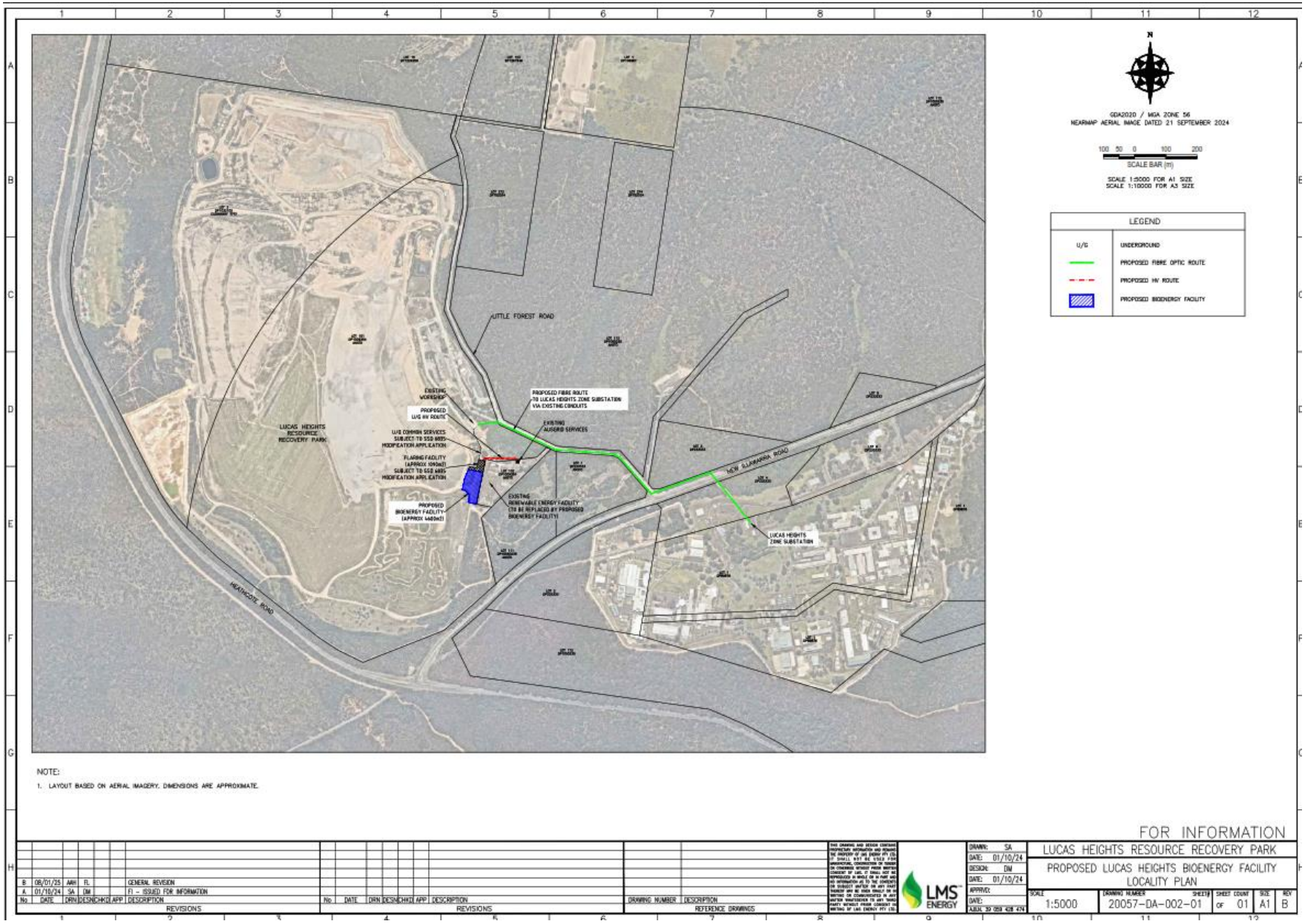

Figure 3.1 Proposed bioenergy locality plan

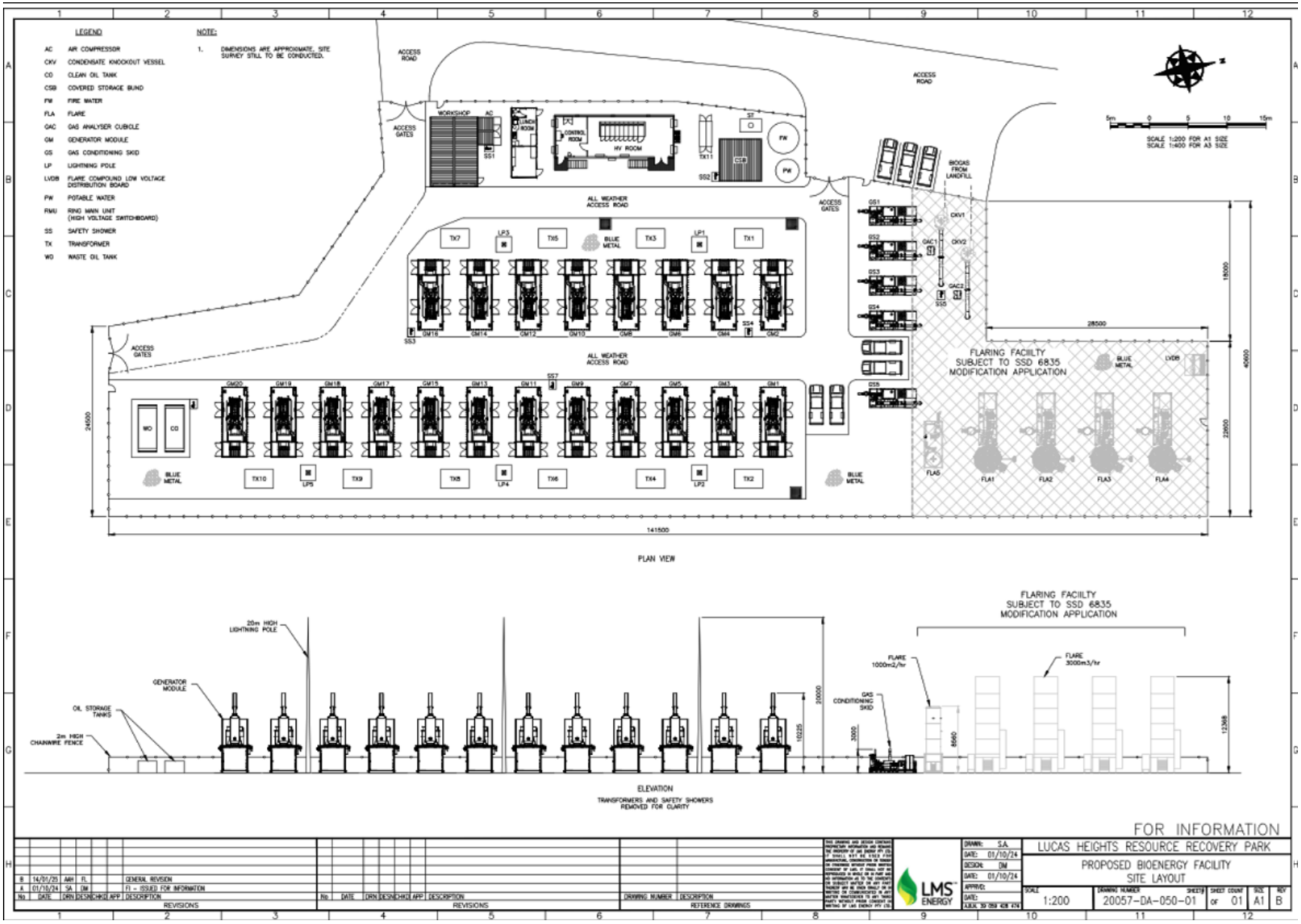

Figure 3.2 Proposed bioenergy facility site layout

3.3 Construction

3.3.1 Methodology

Construction activities associated with establishing the bioenergy facility on the project site would include:

– site preparation:
  - site compound set-up including fencing to isolate bioenergy facility project site from LHRRP operations and set-up of environmental controls
  - minor civil works for site levelling and compaction
  - construction of concrete pad
– mobilisation and structure installations
  - generator assembly and placement onto concrete pads using cranes
  - ancillary connections (telecommunications, electricity through trenching and directional drilling)
– testing and commissioning
  - test and commission of generators and ancillary equipment
– demobilisation.

3.3.2 Plant and equipment

Table 3.2 provides a list of the major pieces of plant and equipment expected to be required during the construction phase. The type and quantity of plant and equipment may vary depending on the construction staging and construction methods and would be determined by the construction contractor(s).

Table 3.2 Construction equipment

Construction equipment		
Excavators	Concrete Trucks	Concrete pumps and agitators
Trucks	Vacuum Trucks	Directional Drill
Dozers	Front end loaders	Generators
Mobile Cranes- various sizes	Welding machines	Graders
Rollers	Semi-Trailers	Contractor service vehicles

3.3.3 Construction workforce

It is anticipated that labour requirements for the duration of the project, a workforce of up to 15 FTE workers would be required.

3.3.4 Construction traffic

Traffic generation during construction is expected to comprise:

– 10 heavy vehicle movements per day
– 30 light vehicle movements per day

All construction traffic would access the bioenergy construction compound site via the main site entrance to LHRRP from Little Forest Road in Lucas Heights.

3.3.5 Construction program and hours

The construction program would require around 6 – 8 months for completion. Construction hours would be in accordance with the existing approved hours for construction at the LHRRP which include:

– Monday - Friday: 7:00 am to 5:00 pm

– Saturday - Sunday: 8:00 am to 5:00 pm

Some construction activities would be undertaken outside the standard construction hours, which may include safety critical works when the site contains minimal staff, deliveries of oversized loads to avoid peak traffic times and emergency works.

3.3.6 Waste

Construction waste streams would include*:*

– minimal spoil – to be reused on site
– minimal waste concrete – transferred off site for recycling
– minimal general waste from construction staff – to be taken off site with staff.

3.4 Operation

The modularised generator equipment is scalable allowing flexibility to operate mixed modes (i.e. combination of either flaring and / or generation) as required. This ensures the ability to combust the maximum available gas, 24 hours per day is seamless with PLC controls and remote monitoring ensuring round the clock tracking.

A staffing requirement of 6 FTE would be required to operate the bioenergy facility, nominal working hours would be in accordance with LHRRP EPL 5065 L4 Hours of Operation, Other landfilling operations.

4. Statutory context

The key requirements of the *Environmental Protection and Assessment Act 1979* (EP&A Act) and the Environmental Planning and Assessment Regulation 2021 (the EP&A Regulation) in relation to the approval and assessment of the project are summarised in Table 4.1.

Table 4.1 Summary of statutory requirements for the project

Legislation	Assessment
Power to grant consent	Section 4.36 of the EP&A Act provides that a State Environmental Planning Policy (SEPP) may declare any development, or any class or description of development, to be State Significant Development (SSD). The project is deemed SSD in accordance with section 2.6 (b) of the State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP), as the project is classified under Schedule 1 – *Electricity generating works* and has a capital investment value exceeding $30 million. In accordance with section 4.36 of the EP&A Act, the consent authority for SSD is the Minister for Planning.
Permissibility	The site is located within the Sutherland Shire Local Government Area (LGA) and the relevant local environmental plan is the Sutherland Shire LEP 2015. The site is zoned SP1 Waste Recycling. Section 2.36(1)(b) of the State Environmental Planning Policy (Transport and Infrastructure) 2021 applies to development for the purpose of electricity generating works and provides that development for this purpose is permissible with consent, if carried out on any land in a prescribed non-residential zone. Clause 2.35 provides the following relevant definition of electricity generating works: *electricity generating works means a building or place used for the following purposes, but does not include a solar energy system—* *(a) making or generating electricity,* *(b) electricity storage.* Pursuant to section 2.35 definitions, clause 2.36 (b) provides for electricity generating works associated with a waste resource management facility may be carried out on land with consent.
Other approvals	**Consistent approvals** Any authorisations under certain legislation, identified in Section 4.42 of the EP&A Act, cannot be refused if it is necessary for carrying out an approved SSD project and is to be substantially consistent with the SSD approval. In relation to the project, these authorisations could include: – An aquaculture permit under section 144 of the *Fisheries Management Act 1994* – An environment protection licence under Chapter 3 of the *Protection of the Environment Operations Act 1997.* – A consent under section 138 of the *Roads Act 1993* – A licence under the *Pipelines Act 1967*. **Approvals not required** An authorisation under certain other legislation, identified in section 4.41 of the EP&A Act, is not required for approved SSD: – A permit under Section 201, 205 or 219 of the *Fisheries Management Act 1994* – An approval under Part 4, or an excavation permit under section 139, of the *Heritage Act 1977* – An Aboriginal heritage impact permit under Section 90 of the *National Parks and Wildlife Act 1974* – A bush fire safety authority under Section 100B of the *Rural Fires Act 1997* – a water use approval under Section 89, a water management work approval under Section 90 or an activity approval (other than an aquifer interference approval) under Section 91 of the *Water Management Act 2000*. **Other approvals**

Legislation	Assessment
	– *Biodiversity Conservation Act 2016*
Pre-conditions to exercising approval	***Biodiversity Conservation Act 2016*** Part 7 of the BC Act applies to approvals under the EP&A Act. Section 7.9 requires a development application for State significant development to be accompanied by a Biodiversity Development Assessment Report (BDAR). Section 7.14 requires the consent authority to take into consideration the likely impact of the proposed development on biodiversity values as assessed in the BDAR. The project would occur on land deemed to have little to no environmental value. A BDAR waiver would be sought to confirm the requirement for a BDAR as part of the scoping phase for this project.
Mandatory matters for consideration	**State Environmental Planning Policy (Resilience and Hazards) 2021** Section 3.10 – 3.12 stipulates a person who proposes to make a development application of potentially hazardous industry must prepare a preliminary hazard analysis (PHA) in accordance with the DPE guidelines and current circulars: – Applying SEPP 33 – Multi-level Risk Assessment – Hazardous Industry Planning Advisory Paper (HIPAP) No 6 – Guidelines for Hazard Analysis. Section 4.6 stipulates that a consent authority must not consent to the carrying out of development unless: – It has considered whether the land is contaminated, and – If the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and – If the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose. The EIS would consider the hazard and contamination risks associated with the project.
Other NSW legislation	
Protection of the Environment and Operations Act 1997	The objectives of the *Protection of the Environment Operations Act 1997* (POEO Act) are to protect, restore and enhance the quality of the environment, in recognition of the need to maintain ecologically sustainable development. The POEO Act provides for an integrated system of licensing and contains a core list of activities in Schedule 1 which require an Environment Protection Licence (EPL). The project would be classified under Schedule 1 of the POEO Act. Section 4.42 of the EP&A Act provides that an EPL cannot be refused if it is necessary for carrying out an approved SSD project and is consistent with the project approval. An EPL would be required for the bioenergy facility.
Commonwealth approvals	
Environment Protection and Biodiversity Conservation Act 1997	A Referral under the *Environment Protection and Biodiversity Conservation Act 1997* (EPBC) Act to the Federal Minister for Environment is unlikely to be required as preliminary environmental assessments indicate that the project would be unlikely to result in significant impacts to any Matter of National Environmental Significance (MNES).
Native Title Act 1993	A review of the National Native Title Tribunal Register did not identify any Native Title determinations within the area surrounding the project.

5. Engagement

This initial scoping of social impacts has been prepared in accordance with the Department of Planning and Environment *Social Impact Assessment Guideline* and the *Social impact Assessment Guideline: State Significant projects* (DPE, 2021).

Scoping of social impacts involves:

– establishing the social locality to understand the communities likely to be affected by the project
– an initial evaluation of the social baseline of the social locality
– an initial evaluation of social impacts
– consideration and articulation of any project refinements.

The following section provides an overview of the social locality and the outcomes of the initial evaluation of potential social impacts and benefits.

5.1 Interest groups identified

A preliminary social locality was identified based on the communities most likely to experience impacts or benefits as a result of the project. The preliminary social locality is outlined in Table 5.1.

Table 5.1 Stakeholders identified

Stakeholder type	Stakeholder
State government	– Department of Planning, Housing and Infrastructure (DPHI) – NSW Environmental Protection Authority (EPA) – Fire and Rescue NSW – Emergency services – Department of Defence (Holsworthy Army Barracks)
Local government	– Sutherland Shire Council
Landholders or site operators	– ANSTO – Cleanaway (Owners and operators of the LHRRP) – Energy Developments Limited (EDL) - operators of existing power station
Community - tourism	– Sporting and recreation groups using the nearby mountain biking trails
Community – business and media	– Sydney International Clay Target Association
Community – local residents and broader community	– Residences located within 2 km radius of the project – Lucas Heights Resource Recovery Staff – LHRRP Community Reference Group

5.2 Engagement carried out

In general, consultation taken to date has largely focused around providing an overview of the project and seeking confirmation of the appropriate approval pathway.

5.2.1 Department of Planning, Housing and Infrastructure

LMS, Cleanaway and GHD representatives held a pre-scoping meeting with DPHI on 11 October 2024 to provide an overview of the scope of the proposed bioenergy facility and likely environmental risks.

5.2.2 Sutherland Shire Council

Cleanaway provided Sutherland Shire Council Chief Executive Officer with a briefing on the bioenergy project on 20 December 2024. Ongoing correspondence with Sutherland Shire Council will continue throughout the preparation of the EIS.

5.2.3 ANSTO

As site head lessee, Cleanaway has introduced to the project to ANSTO and will continue to liaise regarding land owner consent.

5.2.4 Community consultation

An existing community reference group (CRG) operates for the LHRRP and comprises representatives from the local community, recreational and sporting clubs, ANSTO, Sutherland Shire Council and Cleanaway. The CRG meet on a quarterly basis and have been / will be briefed on the proposed gas management infrastructure associated with this Project.

5.3 Engagement to be carried out

A program of community and stakeholder engagement activities will be outlined in a project specific Community Stakeholder Engagement Plan (CSEP).

A CSEP will be prepared to support the development and exhibition of the EIS for the project. The CSEP will be designed to raise awareness, provide consistent and accurate information, and answer questions raised by community members and stakeholders.

This CSEP will :

– ensure that all efforts are made to actively engage with key stakeholders, environmental interest groups and the wider community throughout the EIS process
– provide consistent messaging for engagement and communication activities for stakeholders interested in the project'
– provide an outline of the consultation and engagement methodology which satisfies the requirements of the EIS process as detailed in *Undertaking Engagement: Guidelines for State Significant Projects*[1]
– outline engagement and communication material that will utilise a variety of both traditional and digital tools to ensure that project information is available and accessible to all stakeholders
– outline methods to manage community expectation and incorporate community feedback on potential impacts and mitigation measures as part of the (environmental assessment).

[1] **Undertaking Engagement Guidelines for State Significant Projects**. (March 2024). Department o Planning, Housing and Infrastructure, New South Wales. Retrieved from https://www.planning.nsw.gov.au/sites/default/files/2023-03/undertaking-engagement-guidelines-for-ssp.pdf.

6. Proposed assessment of impacts

The identification of issues to be addressed in the EIS has been undertaken through a risk-based approach in accordance with Appendix A of the *State Significant Development Guidelines – Preparing a Scoping Report* (DPE 2022a).

A summary of the key environmental matters identified during the risk assessment is provided in section 6.1 through section 6.9. Other matters for consideration are identified in section 6.10. A Scoping Summary Table (as required by Appendix A of the *State Significant Development Guidelines – Preparing a Scoping Report*) is provided in Appendix A of this Scoping Report.

6.1 Air quality and odour

6.1.1 Existing environment

The nearest air quality monitoring station is about 14 kilometres northwest of the project site in Liverpool, Sydney which measures the following parameters:

– Carbon monoxide (CO);
– fine particles as PM_{10} and $PM_{2.5}$;
– Oxides of nitrogen (NO, NO_2 and NO_x) and Ozone (O_3);
– Sulphur dioxide (SO_2);
– visibility using nephelometry; and
– ambient temperature, relative humidity, wind speed and direction and sigma theta.

The bioenergy facility is located within the LHRRP site footprint and local air quality is influenced by the landfilling operations. The nearest (non-residential) receiver is located about 500 metres southeast from the site on ANSTO land and the nearest residential receiver is located more than two kilometres from the site.

6.1.2 Potential impacts

Construction

There is the potential for air quality impacts to arise from a variety of processes during construction of the project. Construction activities including earthworks, removal and movement of materials have the potential to cause short-term, temporary, dust emissions.

The scale of earthworks required for establishment of the bioenergy facility results in minimal potential for dust generation beyond that experienced by the adjacent landfill operations and appropriate construction management practices. A construction environmental management plan (CEMP) that identifies dust minimisation measures would be prepared for the bioenergy facility.

Operation

The key potential air emission sources associated with the operation of the project would be products of combustion from the bioenergy facility. These emissions include:

– Nitrogen oxides (NO_x)
– Carbon monoxide (CO)
– Particulate matter ($PM_{2.5}$); and
– Volatile organic compounds (VOCs).

Given the performance of the new bioenergy facility is expected to be equal to or better than the existing power station, compliance with the adopted odour assessment criteria is expected.

6.1.3 Assessment approach

The EIS would include a quantitative Air Quality Assessment which assess potential air quality impacts of the development in accordance with the EPA's Approved Methods for Modelling and Assessment of air pollutants in NSW (2016).

The Air Quality Assessment would also include a quantitative assessment of greenhouse emissions generated during construction and operation of the project.

Assessment criteria would consider Protection of the Environment Operations (Clean Air) Regulation 2010 and other EPA guidelines relevant to landfill gas management (e.g., Environmental Guidelines: Solid Waste Landfills, Second edition 2016).

6.2 Hazard and risk

6.2.1 Existing environment

Desktop searches of the NSW DPHI Spatial Planner and Sutherland Shire Council mapping indicates the project site is not located on flood prone land. However, the project site would be partially located on bushfire prone land (Vegetation Buffer) along the northern boundary.

The surrounding bushland area is also classified as Vegetation Category 1. Vegetation Category 1 is considered to be the highest risk for bush fire and is given a 100 metre buffer. Vegetation Category 1 has the highest combustibility and likelihood of fully developed fires forming (NSW RFS, 2015).

The project would store chemicals required for operation and maintenance commensurate with the existing power station including the following maximum limits:

– Fresh Oil – 42KL
– Waste Oil – 40KL
– Fresh Coolant – 4KL
– Miscellaneous hazardous liquids – 0.35KL.

6.2.2 Potential impacts

The quantity of dangerous goods required for operation of the new bioenergy facility would be consistent with the existing facility. Covered and bunded storage areas would be provided.

Consistent with the existing operations, the bioenergy facility would be partially on bushfire prone land (Vegetation Buffer). Since it would be positioned between the landfill and existing power station, the project site would be further from the surrounding forested areas (Vegetation Category 1) where bushfires may originate. This provides a larger buffer distance for ember attack. As such, the project is not likely to result in increased risk of bushfire impacts.

6.2.3 Assessment approach

A preliminary risk screening would be prepared as part of the EIS, compliant with the Resilience and Hazards SEPP 2021. The screening would focus on the use of dangerous goods and hazardous materials associated with the development. Depending on the screening results, a PHA may be required.

As part of the project site is located within bushfire prone land, a Bushfire Hazard Assessment would also be undertaken as part of the EIS.

6.3 Biodiversity

6.3.1 Existing environment

Flora

The project site and surrounding area is located on highly disturbed land that forms the LHRRP. The existing vegetation surrounding the project site consists of bushland, cleared land and a small amount of semi-cleared tree cover. Vegetation at the site has a history of disturbance, with areas cleared for landfilling and roads, with only a small amount of intact native vegetation remaining around the perimeter of the LHRRP.

A preliminary investigation of the project site undertaken on 23 August 2024 indicated the presence of:

– an unmaintained garden bed with planted Lomandra spp. with small sections of exotic grassland/weeds
– remaining vegetated areas consisting of exotic grassland and associated weeds.

A description of the vegetation observed within and adjacent to the project site is provided in Table 6.1.

A Biodiversity Assessment Report (GHD 2015) was prepared for SSD 6853 which mapped native vegetation within the LHRRP surrounding the project site under the State Vegetation Type Map (SVTM) (superseded by the Biodiversity Assessment Method).

A survey of the LHRRP undertaken in 2015 indicates the vegetation north and west of the project site comprises of Red Bloodwood – scribbly gum heathy woodland. Red Bloodwood – scribbly gum heathy woodland forms part of the Sydney Coastal Dry Sclerophyll Forests community.

Table 6.1 Site visit observations

Description	Image
Along the eastern boundary of the project site between the existing power station, there is an unmaintained garden bed. The garden bed is mostly wood chips and bare earth but there are also small section of exotic grassland/weeds present. The garden bed is not mapped in the SVTM, is considered to be non-native vegetation. Further south along the boundary, ground cover consists of weeds, bare earth and woodchips	
Along the project sites southern boundary, the remaining vegetated areas are exotic grassland and associated weeds.	

Description	Image
Vegetation observations adjacent to the project site	
Immediately north of the project site (looking south), there is a patch of Casuarina spp. It is mapped in the SVTM as PCT 3615 and will be avoided by the proposed development footprint.	
North of the project site (looking south) at the internal road intersection, there is a small roundabout patch of eucalypts (no hollows). It is mapped in the SVTM as PCT 3615 and will be avoided by the proposed development footprint.	
Southwest of the project site is a muddy pond as shown in the image looking southwest. All vegetation is assessed as exotic and is not assigned a PCT and will be avoided by the project footprint.	

Fauna

The project site and surrounding patches of native vegetation are not considered to provide suitable fauna habitat or habitat connectivity. The surrounding patches of native vegetation within the LHRRP, while present, are fragmented and not integral to any continuous or functional ecosystem. This lack of connectivity further reduces the likelihood of fauna utilising the area, as the project site does not support any native species.

Additionally, the nearby waterways which include Mill Creek and Bardens Creek are not considered key fish habitat under the *Fisheries Management Act 1994.* Furthermore, no threatened freshwater species are present in

these waterways, which further supports the conclusion that the project would not impact critical aquatic ecosystems.

6.3.2 Potential impacts

The project site would occupy an area of 0.5 hectares within the existing approved landfill facility which is characterised by disturbed land and lacks significant native vegetation. Small patches of native vegetation found within the LHRRP are highly fragmented and do not provide substantial habitat connectivity. This lack of continuity between vegetation severely limits the capacity for the site to support diverse or sustainable fauna populations.

The project site has been developed to avoid removal of the small patch of eucalypts and also the patch of Casuarina spp. located to the north of the project site as described in Table 6.1.

Given these factors, minimal native vegetation, lack of fauna habitat and connectivity, the potential impacts on local fauna and biodiversity as a result of the project would be negligible. The project is unlikely to disrupt wildlife populations or ecological processes and has been designed to avoid all nearby native vegetation. Therefore, no significant biodiversity impacts are anticipated.

Operation of the bioenergy facility, including the introduction of artificial lighting and 24-hour operation of equipment, is not likely to have significant impacts on biodiversity and would be consistent with the current operation.

6.3.3 Assessment approach

Given the absence of biodiversity values at the project and as the works would occur in existing disturbed areas, a BDAR waiver application would be made as part of the project.

6.4 Heritage

6.4.1 Aboriginal heritage

Existing environment

A preliminary desktop assessment was carried out 19 November 2024 to determine the potential impacts of the project on Aboriginal heritage. This included a search of the Aboriginal Heritage Information Management System (AHIMS) register. No registered Aboriginal heritage sites were identified within the project site.

A heritage due diligence assessment was undertaken as part of the EIS for SSD 6853 (Artefact Heritage 2015) which determined that there are no known Aboriginal sites within the project site. The project site is not located near waterways, ridgelines or rock outcrops that often have a higher probability of containing Aboriginal cultural material.

The nearest registered AHIMS sites in relation to the project are located within the approved LHRRP landfill area 500 metres to the northwest and are assumed to have been removed as part of the Aboriginal Cultural Assessment undertaken as part of the EIS for the LHRRP.

Potential impacts

Due to the highly disturbed nature of the project site and available mapping of known Aboriginal heritage sites within the surrounding area an Aboriginal Cultural Heritage Assessment Report (ACHAR) is not considered necessary, and a due diligence approach would be undertaken.

Assessment approach

The EIS would include a desktop assessment of potential impacts to Aboriginal Heritage in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW, 2010).

6.4.2 Non-Aboriginal heritage

Existing environment

A preliminary desktop assessment was undertaken on 27 November 2024 for local, State, National and World heritage registers to determine what non-Aboriginal heritage sites in vicinity of the project. The nearest local heritage items found via a search of the State Heritage Inventory (NSW Government, 2024) is *Eucalyptus paniculata* (Grey Ironbark) (Listing No. 2802), located 1.4 kilometres north of the project site.

No State heritage items are located within or adjacent to the project site, the nearest item, the 'Lucas Watermills Archaeological Sites' (Listing No. 01988) is located about 3 kilometres to the east. No non-Aboriginal heritage items or associated curtilages occur within the project site or LHRRP.

Potential impacts

The construction and operation of the project would not impact any non-Aboriginal heritage items.

Assessment approach

A basic due diligence assessment of non-Aboriginal heritage would be undertaken as part of the EIS.

6.5 Noise and vibration

6.5.1 Existing environment

The bioenergy facility would be located within the LHRRP site and is not located in close proximity to sensitive receivers. The nearest (non-residential) receiver is located about 500 metres south-east from the site on ANSTO land and the nearest residential receiver is located more than two kilometres from the site.

6.5.2 Potential impacts

Construction

During construction, the project has the potential to generate noise emissions from a variety of sources, including:

– site establishment and earthworks
– activities associated with installation of equipment
– loading and unloading of materials and waste
– movement of heavy vehicles to and from the site
– construction traffic on local roads.

Noise and vibration impacts would be short-term temporary during construction activities and occur from 7 am to 5 pm Monday to Friday or 8 am to 5 pm on Saturday and Sunday. Additionally, these impacts are likely to be mitigated further due to the distance between the project site and the nearest sensitive receivers.

Construction noise would be further mitigated by the existing background noise from the normal operations of the LHRRP which typically involves heavy vehicle movements and other industrial activities. This ongoing activity would mask some of the construction noise, reducing its perceptibility to sensitive receivers in the area.

Operation

The project would operate 24 hours a day seven days a week and noise generated during operation is expected to be associated with the operation of the generators including:

– venting of gases
– operation of motors and compressors.

Operational noise impacts are expected to be generally consistent with existing conditions at a level consistent with the existing power station.

The new bioenergy facility is not expected to introduce additional noise sources that would elevate noise emissions beyond existing operations.

6.5.3 Assessment approach

A Noise and Vibration Impact assessment would be undertaken as part of the EIS in accordance with the *Noise Policy for Industry* (EPA, 2017) and the *Interim Construction Noise Guideline* (DECC, 2009).

6.6 Contaminated land

6.6.1 Existing environment

A search of the EPA contaminated land records register was undertaken on 27 November 2024 which identified the following regulated or under assessment sites in proximity to the project:

– Harrington's Quarry (Regulated under CLM Act)
– IWC Landfill (Regulated under CLM Act)
– Sydney Clay Target Club (Under assessment).

Each of these areas are located between 1 - 3 kilometres north of the project site and are recorded on the NSW EPA contaminated sites list (NSW EPA 2024).

A search of the POEO register on 27 November 2024 identifies 7 EPL's and 63 environmental protection notices recorded in the suburb of Lucas Heights. In relation the LHRRP, Cleanaway currently operate under two EPL's (EPL 5065 and 12520) and EDL operates under an existing licence (EPL 6345) related to the Lucas Heights 2 power station which generates electricity from landfill biogas.

6.6.2 Potential impacts

A contamination assessment (GHD 2015g) was completed as part of the original EIS for SDD 6853 (GHD 2015a). Historical imagery shows that the project site was previously cleared and there is no indication that landfilling activities have impacted the area.

Preliminary geotechnical investigations have been undertaken to characterise the likely extent and composition, which also confirmed the project site has not been subject to previous landfilling activities. The risk of disturbing contaminated materials or waste is considered minimal.

6.6.3 Assessment approach

A desktop review of available information sources would be undertaken to understand the existing environment and potential for contamination within the project site. A chapter in the EIS would detail current and historic site activities, environmental conditions and potential contamination risks.

6.7 Traffic and access

6.7.1 Existing environment

The road network around the project site consists of two main connections for south Sydney and the Illawarra to metropolitan Sydney, these being Heathcote Road towards southwest Sydney and New Illawarra Road through Menai towards Bankstown.

The existing power station is accessed directly via a private entrance off Little Forest Road. The new bioenergy facility would be accessed via the Cleanaway main entrance off Little Forest Road.

The traffic impact assessment (GHD 2015b) completed for SSD 6853 included consideration of vehicles associated with operation of the existing LHRRP. The assessment concluded that the local road network including key intersections would be able to accommodate the projected traffic movements resulting from the landfill development.

6.7.2 Potential impacts

Operational traffic movements and traffic routes are expected to be largely consistent with the existing landfill operation. There are very few vehicles associated with daily operation of such facilities in any case. A minor increase in construction traffic is anticipated however is unlikely to impact the local road network. Therefore, no significant change to traffic impacts is expected as a result of the project.

6.7.3 Assessment approach

The EIS would include a qualitative traffic assessment which would include:

– confirmation of the existing traffic and transport environment
– identification and assessment of potential traffic impacts, including site access requirements
– proposed construction and operation traffic volumes, the nature of existing traffic and the need to apply traffic management measures
– identification and assessment of other potential transport impacts to public roads
– identification and assessment of potential access impacts
– consideration of the potential for cumulative impacts identification of mitigation measures.

6.8 Social impact

This section summarises the first phase of the social impact assessment (SIA) process undertaken in accordance with the *Significant Development and State Significant Infrastructure Guidelines – Preparing a Scoping Report* (DPIE, 2022).

The first phase involves SIA scoping and initial assessment, refining and planning. It is used to identify likely social impacts before considering suitable refinements or other early responses.

6.8.1 Existing environment

The project site is located within the southern extent of the LHRRP in the suburb of Lucas Heights. There are no residential areas in Lucas Heights, which is largely zoned as Special Purpose (SP1), for Research and ANSTO facility. Other land uses in Lucas Heights include Environmental Conservation, National Parks and Nature Reserves and Public Recreation.

Lucas Heights suburb is bordered by Heathcote Road, which travels along the southern, western, and northern edges of the suburb, bordering the suburb of Holsworthy. Holsworthy is a Special Purpose area home to the Holsworthy Barracks, an Australian Department of Defence site. The area nearest to Lucas Heights includes dense bushland. Heathcote Road is a busy road which provides a connection between Heathcote and Liverpool.

The nearest residential areas to the project are the southwestern portion of Barden Heights and the western portion of Engadine.

There are several recreational facilities located within Lucas Heights close to the project site. These include Mill Creek Mountain bike trails, a mountain biking track network located in the Lucas Heights Conservation Area approximately 1.1 kilometres north of the project site. Sydney Clay Target Club, and Australian Sporting Clays Sydney both offer clay target shooting facilities and are located approximately 1.5 kilometres from the project site on the northwest edge of the suburb.

The demographic profile for Engadine and Barden Ridge in 2021 were somewhat similar to each other, and compared to Sutherland LGA had a younger age profile with a median age of 39 years compared to 41 years (ABS, 2021). In 2021, Engadine and Barden Ridge had less people aged 35 to 49 years (17.8%) compared to Sutherland LGA (20.5%), and less people over 75 years compared to the LGA 4.5% compared to 8.8%) (ABS, 2021). Engadine and Barden Ridge have a lower proportion of people who identify as Indigenous (4.7% compared to Sutherland LGA at 4.1%), and more people born in non-main English-speaking countries (4.7% compared to Sutherland LGA 2.7%) (ABS, 2021).

6.8.2 Potential impacts

Construction

Construction of the project may result in minor and temporary changes to local amenity (e.g. noise, vibration, and visual changes) for people located close to construction activities. Since the nearest residences are more than two kilometres away, and the site is accessed via major rather than local roads, impacts of construction on local residents are expected to be minimal. The project would provide some local employment opportunities during construction. Construction hours would be aligned with landfill operating hours and are not likely to be an observable impact beyond existing operations.

Operation

Operation of the project may result in the following impacts for the community:

– concern from local communities about perceived and actual air quality impacts due to operation of the facility,
– changes to local amenity (e.g. noise, vibration, air emissions) during operation for people within proximity to the facility

The project is a like-for-like replacement of the existing power station with upgrades to modern standards, it is expected that there will be no additional impacts compared to the existing conditions. This alignment with the current land use and zoning should ensure that the project does not introduce significant new impacts beyond the existing operations.

6.8.3 Assessment approach

A social impact assessment would be prepared in accordance with the requirements of the NSW Social Impact Assessment (SIA) Guideline. The assessment would include:

– undertaking a desktop review of background documents and studies to understand the proposed construction activities, timing, and potential impacts, the scope of the proposed infrastructure and the social environment
– establishing a social baseline of the social locality, supported by outcomes of consultation activities with the community and stakeholders
– working with the proponent and the EIS leads to inform the approach to any consultation activities that may be required or recommended to understand social impacts
– identifying potential social (and qualitative economic) impacts and benefits and ranking their significance based on the DPHI SIA Guideline criteria.
– developing impact mitigation strategies based on the significance of impacts identified

6.9 Cumulative impacts

Cumulative impacts of the project would be assessed in the EIS. The assessment would focus on the project's key issues that have the potential to generate cumulative impacts with other projects in the vicinity which are likely to have concurrent construction and/or operational timeframes.

As the bioenergy facility would replace the existing power station and is located within the LHRRP site, the operational impacts of the facility itself are likely to be low. Cleanaway is currently submitting a State Significant Development application (SSD-78269209) to extend the LHRRP landfill to the west of the existing footprint to enable continued operation at the currently approved landfilling rate to at least until the end of 2039/40. The project would not rely on the western extension for continued operation.

No other projects with potential to generate cumulative impacts have been identified in the project locality.

Cumulative impacts would be assessed in the EIS in accordance with the *Cumulative Impacts Assessment Guidelines for State Significant Projects* (DPE 2022b).

6.10 Other impacts

This section provides an overview of other environmental matters for those environmental aspects that, based on existing information and the description of the project, would require limited or no further assessment in the EIS. A summary of other impacts is provided in Table 6.2.

Table 6.2 Summary of relevant information for issues other than key issues for the project

Environmental matter	Existing environment	Potential impacts	level of assessment/assessment approach
Visual	A visual impact assessment (GHD 2015e) was undertaken as part of the original EIS for SSD 6853 that considered the approved final landform which is significantly higher than the stacks proposed to be installed as part of the new bioenergy facility. All visual receivers identified were found to have a sensitivity of moderate or less due to limited outlooks, limited quality of views, limited interest in views towards the LHRRP or distance towards the LHRRP which reduces its prominence in the view.	The new bioenergy facility is not expected to have a significant impact on visual amenity to identified sensitive receivers.	The EIS would include a high-level assessment of landscape and visual impacts to identify the potential visual impacts of the project on the nearest sensitive receivers such as public roads, places of residence, work and recreation and provide mitigation measures.
Surface and groundwater	The project site would be located approximately 250 m from Mill Creek. No waterways or drainage lines are located within the boundaries of the project site.	The project would require minimal earthworks to establish a building foundation and is not expected to impact on site hydrology or aquatic ecosystems. Waste oil and coolant would be nominally removed by a licence liquid waste contractor and not discharged directly from site.	Appropriate stormwater controls would be implemented during the design and installation of the required works and during ongoing operation in line with standard practices.
Waste	The project site is located within the LHRRP which operates a resource recovery centre and waste collection point, garden organics processing and landfill. Currently the landfill is approved to receive 850,000 tonnes of waste per year.	An overview of the anticipated waste materials generated by the projects operations are outlined in section 3.3.6.	The EIS would include a high-level waste management assessment that would assess the waste generated from the construction and operation of the project and provide waste management measures to mitigate potential environmental impacts.

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Appendices

Appendix A

Scoping summary table

Environmental Impact Statement (EIS) scoping worksheet for:	*Lucas Heights Resource Recovery Park - Bioenergy Facility* hh								Date:	Jan-25	

What matters might be impacted?			What activities might cause an impact?	What are the characteristics of the impact?						How will the impact be managed?	What are the community and other stakeholder views?	What level of assessment and engagement is required in the EIS preparation phase?	
Social and environmental matters I.e. natural or human assets or values aggregated at the level most appropriate for informing management and assessment requirements *Click on the matter for a description, or the link above for full glossary*			Without any mitigation, is the proposal likely to impact on the matter? *(Select from list)*	If there is a 'likely' impact: 1. list the activities expected to cause the impact; and 2. if applicable, list the receptor being impacted and its status. *E.g. construction noise will be heard at nearby school* If 'unlikely', briefly explain why. Has the impact been actively avoided through project design or site location? *(Manual entry)*	Is the impact, without mitigation, expected to cause a material effect with regard to its... *(Answer 'Y', 'N' or '?')* *Click on characteristic for description, or the link above for further detail*				Does the impact need assessment in the EIS? *(Auto fills)*	Is the impact, without mitigation, expected to have a material cumulative effect with other impacts (including from other projects)? *(Select from list)*	What safeguards and management measures are expected to be required to address the impact? *(Select from list)*	Are there community or other stakeholder concerns regarding the impact or activity? *(Based on engagement with community and other stakeholders)* *(Select from list)*	Expected level of assessment and/or engagement required *(Auto fills)*	Relevant section in Scoping Report *(Manual entry)*
					extent?	duration?	severity?	sensitivity?						
What does the proposal mean for people?	AMENITY	acoustic	Likely	Construction noise will be generated by the proposal, with closest receivers approximately 500 metres. Located within an existing landfill operation, minor addition to existing noise environment.	Y	Y	N	N	Yes	Yes	Project Specific	No	Key Issue + CIA	
		visual	Likely	The site is shielded from surrounding receivers and would be visually consistent with the facility.	N	Y	N	N	Yes	No	Standard	No	Other Issue	
		odour	Likely	The bioenergy facility will not result in odour emissions	N	N	N	N	No				Scoping Report	
		microclimate	Unlikely	Ongoing operation consistent with current land use									Scoping Report	
		other - please specify												
	ACCESS	access to property	Likely	Existing access to LHRRP via Little Forest Road.	N	N	N	N	No				Scoping Report	
		utilities	Likely	New tranmission connection of approximately 200 metres to an existing Ausgrid connection point	N	N	N	N	No	No	Standard		Other Issue	
		road and rail network	Likely	Impacts on traffic movements/flows due to generation of construction traffic Impacts on traffic movements/flows due to operational traffic	N	N	N	N	No	No	Standard		Other Issue	
		offsite parking	Unlikely	Parking will be confined to the project site during construction and operation										
		other - please specify												
	BUILT ENVIRONMENT	public domain	Unlikely	Operational impacts will be confined to project site									Scoping Report	
		public infrastructure	Unlikely	Impacts will be confined to project site									Scoping Report	
		other built assets	Unlikely	Impacts to surrounding built environment during construction of project limited to telecommunications connection through existing conduits During operation, impacts confined to project site									Scoping Report	
		other - please specify												
	HERITAGE	natural	Unlikely	The site is heavily disturbed, and no listed natural heritage items or places would be affected.									Scoping Report	
		cultural	Unlikely	No listed items in proximity to works.									Scoping Report	
		Aboriginal cultural	Unlikely	The site is heavily disturbed, and no items of Aboriginal heritage significance are located within close proximity to the project									Scoping Report	
		built	Unlikely	No listed items in proximity to works.									Scoping Report	
		other - please specify												
	COMMUNITY	health	Unlikely	Construction activities, work sites and the movement of plant, machinery, and traffic are unlikely to affect public health and safety. Health issues associated with operation of the bioenergy facility limited to potenial air emissions assessed in the air quality assessment	N	N	N	N	No	No	Standard		Other Issue	
		safety	Likely	Issues associated with dangerous goods and materials handling during construction/operation	Y	Y	Y	Y	Yes	No	Standard		Other Issue	Human safety risk assessed in hazard and risk report
		services and facilities	Unlikely	No impacts to community services / facilities									Scoping Report	
		cohesion, capital and resilience	Unlikely	No impact on social cohesion, capital and resiliance									Scoping Report	
		housing	Unlikely	No impact to housing									Scoping Report	
		other - please specify												
	ECONOMIC	natural resource use	Unlikely	No impacts on natural resources- proposal is located within an existing industrial site with existing service connections.									Scoping Report	
		livelihood	Unlikely	Security of ongoing direct and indirect employment									Scoping Report	
		opportunity cost	Unlikely	Project would result in positive feedback from capital costs									Scoping Report	
		other - please specify												
What does the proposal mean for the natural environment?	AIR	particulate matter	Likely	Dust and particulate matter generated during construction. Potential for minor emissions during operation.	Y	Y	N	N	Yes	Yes	Project Specific		Key Issue + CIA	
		gases	Likely	Localised exhaust emissions from construction vehicles and plant.	Y	N	N	N	No				Scoping Report	
		atmospheric emissions	Likely	Emissions from generators	Y	Y	N	N	Yes	Yes	Project Specific		Key Issue + CIA	
		other - please specify												
	BIODIVERSITY	native vegetation	Unlikely	Existing disturbed site - areas of native vegetation within LHRRP actively avoided during project development									Scoping Report	
		native fauna	Unlikely	Existing disturbed site - areas of native vegetation within LHRRP actively avoided during project development									Scoping Report	
		other - please specify												
	LAND	stability and/or structure	Likely	Potential for increased erosion and soil instability for permanent structures	N	Y	N	N	No				Scoping Report	
		soil chemistry	Likely	Site not subject to previous filling which would impact on spoil chemistry and capability	Y	N	Y	Y	Yes	No	Standard		Other Issue	
		capability	Unlikely	The project site is highly modified. The proposal is not expected to affect the capability and/or productive capacity of land.									Scoping Report	
		topography	Unlikely	No changes to topography are expected									Scoping Report	
		other - please specify												
	WATER	water quality	Unlikely	No impacts to water quality are anticipated	N	N	N	Y	No	No	Standard		Other Issue	
		water availability	Unlikely	Existing services located within the site									Scoping Report	
		hydrological flows	Unlikely	No impacts to hydrological flows									Scoping Report	
		other - please specify												
What risks does the proposal face?	RISKS	coastal hazards	Unlikely	No changes to the coastal zone									Scoping Report	
		flood waters	Unlikely	Impact to flood duration or severity unlikely									Scoping Report	
		bushfire	Likely	Site is bushfire prone	N	Y	N	Y	Yes	No	Standard		Other Issue	
		undermining	n/a	No undermining present									No assessment necessary - Worksheet only	
		steep slopes	Unlikely	Site has flat topography									Scoping Report	
		Fire and explosion	Likely	Impacts as a result of incident	Y	Y	Y	Y	Yes	Yes	Project Specific		Key Issue + CIA	

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